



City of Flagstaff Municipal Sustainability Inventory February 2008

Sustainability is a key element for the City of Flagstaff as it strives to become a community where the social well-being of current and future citizens is supported by a vibrant economy and a self-renewing, healthy environment. Sustainability provides a framework for policy and program development that supports efforts to ensure that our activities today balance our social, economic, and environmental needs and those of future generations.

Municipal Sustainability Inventory

The City of Flagstaff has developed a variety of innovative policies and programs that demonstrate its commitment to the economic, environmental and social stewardship of municipal operations and the Flagstaff community. The Municipal Sustainability Inventory catalogs these existing policies and programs, providing an important context for the pending City of Flagstaff Sustainability Plan. The inventory establishes a comparison or control, allowing the City to measure its sustainability baseline and monitor progress toward its sustainability goals as identified in the Sustainability Plan.

The format of the inventory mirrors the structure of the pending plan, which targets the following sectors:

- **Waste Prevention**
Promotes the decrease of waste generation, improves material efficiency, and increases the reuse of products and materials in the waste stream.
- **Resource Conservation**
Promotes the wise use of natural resources and decreases consumption rates of the community's limited resources.
- **Climate Management**
Promotes effective and comprehensive solutions for addressing regional climate issues.
- **Quality of Life**
Addresses unique issues to Flagstaff that challenge or enhance community sustainability.

The inventory is intended to be used as reference for municipal operations as well a communication and educational tool for the community. The inventory was spearheaded by the City of Flagstaff Sustainability Program in 2008. The development of this inventory was a collaborative process, involving all City of Flagstaff municipal departments.

City of Flagstaff Municipal Sustainability Inventory

Table of Contents

I. Sustainability Program	4
A. Program and Policy Development	
B. Community Outreach and Education	
C. Sustainability Leadership Team	
D. Sustainability Commission	
E. Sustainability Tips	
II. Waste Prevention	4
A. Collection Services	
B. Recycling	
C. Green and Wood Waste Collection	
D. Composting and Recycling Education	
E. Hazardous Products Center	
F. Anti-Litter	
G. Adopt-An-Avenue	
III. Resource Conservation.....	6
A. Long Range Planning	
B. Water Conservation	
C. Reclaimed Water	
D. Water Commission	
E. Stormwater Treatment	
F. Stormwater Advisory Committee	
G. Wild Urban Interface - Fuel Management Program	
H. Brownfield Land Recycling	
I. Open Space Commission	
J. Historic Preservation Program	
IV. Climate Protection.....	8
A. Energy Conservation	
B. Renewable Energy	
C. Northern Arizona Renewable Energy Purchasing Group	
D. Environmental Management Program	
E. Alternative Fuels	
F. Smart Fleet	
G. Flexible Work Arrangements	
H. The Flagstaff Urban Trails System	
I. Flagstaff Metro Planning Organization	
J. Bicycle Advisory Committee	
K. Pedestrian Advisory Committee	
L. Trip Diary Survey	
M. Safe Routes to School	
N. ecoPass	
O. City Bike Fleet	
V. Quality of Life.....	10
A. Workforce Housing	
B. Community Reinvestment and Economic Development	
C. Parks and Recreation	
D. Dark Skies Ordinance	

City of Flagstaff Sustainability Inventory

I. Sustainability Program

A. Program and Policy Development

The Sustainability Program is dedicated to promoting sustainable living and providing practical solutions to the Flagstaff community. The program is charged with developing the community-wide Climate Management and Sustainability Plans.

B. Community Outreach and Education

The Sustainability Program recognizes that community awareness, responsibility, participation and education are key elements of a sustainability initiative. The City will be a leader in educational opportunities to support community awareness and participation in cooperation with schools, colleges and other organizations in the community. Outreach events include; the One Community Sustainable Living Lecture Series, technical seminars, Bike to Work Week, Earth Day, Sustainable Living Fair, and the Solar Home and Building Tour.

C. Sustainability Leadership Team

The Sustainability Leadership Team consists of representatives from all City Departments and various Divisions. The team is working to integrate sustainable thinking and goals in the management and operation of all City Departments.

D. Sustainability Commission

The Sustainability Commission consists of seven Council-appointed citizens. The commission is responsible for recommending and coordinating activities in concert with the Flagstaff sustainability program, the U.S. Mayors Climate Protection Agreement, and other sustainability initiatives. Among the Commission's directives are the promotion of sustainable practices in all spheres of life and educating Flagstaff citizens.

E. Sustainability Tips

Sustainability tips are intended to provide community members and City employees with up to date and creative information to help them make positive and sustainable choices. The tips are made available to the community through the City of Flagstaff's City Manager weekly report and local media. City employees receive monthly emails designed to be a resource for City employees at work and home.

II. Waste Prevention

A. Collection Services

Collection Services plans and implements programs for the collection of trash with strategies and practices that emphasize waste reduction, recycling and environmentally sound landfill management. Collection Services offers appliance collection, bulky trash collection, residential and commercial recycling collection, glass recycling, and green and wood waste mulching services. In addition to adhering to federal, state and local mandates relating to waste management the division also acts in ways that promote solid waste diversion.

B. Recycling

The Environmental Services Division provides voluntary curbside recycling services to Flagstaff residents. This includes household recyclables, white goods (washers, dryers, refrigerators), and move-in boxes. Since its inception in 1998 the voluntary program has collected thousands of tons of recyclables and experienced significant growth in participation. In 1999, 892 tons of recyclables were collected and diverted from the landfill. While in 2007 3,809 tons of recyclables were collected. Although glass is not included in the curbside recycling stream at this time, six drop-off locations are being provided. Collection at these locations averages 23.5 tons per month, and is increasing. Plans are being made to capture more glass tonnage, as approximately 8% of all household trash is glass.

C. Green and Wood Waste Collection

The Environmental Services Division collects green and wood waste, currently using a chipper crew. The material is chipped, and some is retained for landscape mulch, provided free of charge to Flagstaff residents. The remainder is used at the Cinder Lakes Landfill for alternative daily cover. Plans are currently in place to purchase an articulated loader which would increase the collection of Green and Wood Waste by 50- 75%.

D. Composting and Recycling Education

The Composting and Recycling Education program provides education and outreach to residential and business member about the City's recycling program and the numerous benefits of recycling and composting. Backyard compost workshops are conducted several times per year in association with compost bin sales for residents.

E. Hazardous Products Center

The Hazardous Products Center provides the City of Flagstaff and Coconino County residents with a convenient permanent year-round facility for proper handling, storage, recycling and disposal of Household Hazardous Waste. Additionally, the HPC provides a safe, affordable and local option for businesses that qualify as a Conditionally Exempt Small Quantity Generator to participate in the Small Business Waste Program (SBWP). By offsetting transportation costs and combining wastes from multiple businesses, the SBWP can provide an economical solution to businesses' hazardous wastes disposal needs.

F. Anti-Litter

This program serves to mediate the amount of waste that is incurred by the community and environment. The two facets of the program include code enforcement and litter reduction strategies. The code enforcement program provides for the safe disposal of materials within the city as to limit the harm that it may have on the community. Litter reduction strategies include the recruitment and organization of litter clean-up volunteers.

G. Adopt-An-Avenue

The City of Flagstaff Adopt-An-Avenue program has been an effective community enhancement component. This volunteer based program focuses its efforts on litter abatement along city roadways. Local civic groups, non-profit groups, schools, neighborhood associations, business employee groups, university organizations, and local residents have joined the program to offer their assistance with the ongoing battle of litter.

III. Resource Conservation

A. Long Range Planning

The Flagstaff Regional Land Use and Transportation Plan (FRLUTP) establishes development policy designed to balance eminent growth and resource conservation in a comprehensive manner. Requiring and promoting mixed-use Traditional Neighborhood Design, a proven Smart Growth strategy, the FRLUTP inhibits urban sprawl, a leading cause of environmental damage. The compact development patterns called for in the FRLUTP promotes the preservation of open space and natural resources such as forest, floodplains, and slopes and reduces storm water run-off. As well the FRLUTP policies, specifically the promotion of Smart Growth, seeks a balanced transportation system providing pedestrian oriented development, transportation choices, connectivity of streets, and appropriately scaled transportation facilities.

B. Water Conservation

The Water Conservation Program serves to educate the community about water conservation practices and assist with conservation implementation. The program conducts educational programs including the water festival, teacher trainings with Project WET curriculum, and irrigation and xeriscape workshops. The water conservation incentive program offers rebates to City of Flagstaff utility customers for qualifying efficient toilets, washers, hot water re-circulators and turf replacement. The program also manages the watering regulations through enforcement of the Drought Preparedness Plan of Strategy levels and promotes outdoor water conservation through xeriscape landscaping projects and the sale of rain barrels. Other incentive programs, funded through grants, include providing pre-rinse spray valves for restaurants and waterless urinals for City facilities, Flagstaff Unified School District and Coconino Community College.

C. Reclaimed Water

Reclaimed water is produced by both of the City's wastewater treatment plants. Treated effluent from the Wildcat Hill Plant supplies irrigation water to golf courses and recreational areas on the East side of Flagstaff. Treated effluent from the Rio de Flag Water Reclamation Plant supplies most public schools and parks, as well as a golf course, cemeteries, public landscapes, and residences. Reclaimed water is one of the most significant water conservation tools the City has. Over 500 million gallons of reclaimed water are used each year for irrigation, and new customers continue to come on line.

D. Water Commission

The Water Commission consists of five Council-appointed citizens, a representative from the Planning and Zoning Commission, and an ex-officio Councilmember. The commission meets to review extensions of the water and sewer collection systems, treatment and use of water furnished by the City, treatment and disposal of the City's sewage system effluent, and water/sewer rates.

E. Stormwater Treatment

The Stormwater program develops recommendations and policy concerning development and growth within flood plain areas. They assist capital improvements to mitigate the damage that occurs as a result of flooding and are researching practices that enhance local Aquifer recharge.

F. Stormwater Advisory Committee

The Stormwater Advisory Committee has 9 voting members and an ex-officio Councilmember. The committee provides community input and makes recommendations for the effective development and implementation of the Stormwater Master Plan and Stormwater Quality Program. This advisory committee reports directly to the Stormwater Division.

G. Wild Urban Interface - Fuel Management Program

The goal of the Fire Department's Fuel Management program is to protect all Values-At-Risk. Utilizing developed plans, for example the Forest Stewardship Plan, the department conducts activities in five core areas: Land Use Planning, Public preparedness, Hazard Mitigation, Response, and Strategic Development. In collaboration with partners, the department seeks to implement forest treatments throughout the area that 1) restore our forests, 2) protect our community, 3) promote utilization of small-diameter wood products, and 4) practice adaptive management. The program is a unique component of municipal government, and has resulted in national recognition for the community.

H. Brownfield Land Recycling

The City of Flagstaff's Brownfield Land Recycling Program encourages the reuse of previously developed land and buildings to create jobs, revitalize neighborhoods, reduce potential human health risks, and decrease development pressure on open lands. The program promotes the redevelopment of Brownfield by facilitating private party transactions and through the acquisition, cleanup, and resale of environmentally challenged real estate.

I. Open Space Commission

The Open Space Commission consists of six Council-appointed members, a representative from the Planning and Zoning Commission, a representative from the Parks and Recreation Commission, and an ex-officio Councilmember. The Commission serves as an advisory body on the acquisition, management, use, restoration, enhancement, protection, and conservation of open space land.

J. Historic Preservation Program

The Historic Preservation Program consists of the Historic Preservation Officer, the Historic Preservation Commission, and the Historic Facades and Signs Grant Program. The Historic Preservation Officer and Commission review development within designated districts and promote preservation through district formation, education, technical assistance, and grant distribution. In addition to preserving heritage resources for the quality of life and intrinsic benefits, the re-use and rehabilitation of historic facilities conserves the embodied energy, reduces the need for expanded infrastructure, and provides a viable alternative to urban sprawl.

IV. Climate Protection

A. Energy Conservation

The Energy Conservation project, a three year, \$3.8 million effort, included upgrades to or installation of lighting fixtures; traffic lights; energy management controls; Heating, Ventilation, and Air Conditioning systems; water conservation measures; energy efficient motors; and vending machines. The annual energy savings for gas and electric consumption is 42 percent in City of Flagstaff facilities.

B. Renewable Energy

The City has successfully installed a 13 Kilowatt solar system that is tied directly into City Hall. The system was brought on-line in 2007. Two sets of solar panels were installed by APS Energy Services on City Hall. One set was installed vertically on the south facing wall at the eastern end of City Hall, while another set was installed on top of a newly constructed covered walkway on the south facing western side of City Hall. A Skystream 3.7™ wind generator has been installed at the Cinder Lake Landfill. The turbine is a 1.8 Kilowatt system that will assist in offsetting energy needs at the landfill facility.

C. Northern Arizona Renewable Energy Purchasing Group

The Northern Arizona Renewable Energy Purchasing Group (NAREG) mission is to consolidate enough purchasing demand for renewable energy to stimulate APS to invest in renewable energy generation in northern Arizona. As a collective first step, participants will commit to approximately five percent of their energy purchases to renewable sources, followed by annual increases, until the total load of NAREG participants reaches a point at which APS could source renewable energy from northern Arizona. The initial members of this group are Northern Arizona University, Coconino County, Coconino Community College, the City of Flagstaff, Flagstaff Unified School District, Xanterra Resorts, and APS. The City of Flagstaff approved this measure and will begin purchasing five percent of its energy from renewable resources in fiscal year 2008/2009 (July 1, 2008).

D. Environmental Management Program

The Environmental Management Program works to ensure the all City operations are in compliance with federal and state regulations as they pertain to the environment, including but not limited to asbestos, lead based paint, underground storage tanks and petroleum contaminated soils. The program also ensures appropriate indoor air quality measurements for city facilities.

E. Alternative Fuels

2003 through 2006 the City's diesel fleet used a B-20 winter diesel with a cold weather additive. Due to the composition of the new low-sulfur diesel a B-5 blend is currently used with a winter additive in the colder months. In the warmer months, a standard B-20 diesel is used. More than 200 City vehicles are utilizing alternative fuels.

F. Smart Fleet

Since 1996 Fleet Services has been recycling oil and anti-freeze. It also adopted a tire re-tread policy, which prolongs the life of vehicle tires. In 2003, Fleet Services initiated a hybrid purchasing program. The City has since purchased 21 hybrids, two propane-powered and two flex fuel, and three electric GEMS vehicles.

G. Flexible Work Arrangements

The Information Technology Division Flex Time / Telecommuting Program is designed to make flexible schedules and working from home effective alternatives to encourage sustainability, reduce traffic, conserve resources and reduce greenhouse emissions. The Fire Department provides a flexible 48 hours on 96 hours off schedule.

H. The Flagstaff Urban Trails System

The Flagstaff Urban Trails System (FUTS) serves as an essential transportation network that enables the community to travel through the city without the use of an automobile. This program works to provide greater access to the existing FUTS infrastructure by providing regular maintenance and upkeep. This program has also expanded the system so that it is more accessible. The internal city trail system allows for cycling and walking through out the community in both safe and aesthetically pleasing environments.

I. Flagstaff Metro Planning Organization

The Flagstaff Metro Planning Organization is responsible for creating a transportation system that supports the character and needs of the community. The development of the transportation system seeks to be in alignment with the unique environmental dispositions of Northern Arizona while facilitating social interaction in both an effective and efficient manner. The program is rooted within the Cooperative, Comprehensive and Continuing Urban Transportation Planning Program. Through cooperation with city, state and federal agencies this program intends on providing the City of Flagstaff with transportation services that help it achieve its goal of equity and sustainability.

J. Bicycle Advisory Committee

The Bicycle Advisory Committee is composed of seven citizen members appointed by the Traffic Commission. The committee investigates, considers, and makes recommendations to the Traffic Commission on items relating to bicycle issues in the community.

K. Pedestrian Advisory Committee

The Pedestrian Advisory Committee is composed of seven citizen members appointed by the Traffic Commission. The committee investigates, considers, and makes recommendations to the Traffic Commission on items relating to pedestrian issues in the community.

J. Trip Diary Survey

In 2006, the Flagstaff Metropolitan Planning Organization commissioned a survey of residents' travel patterns and mode choice (single-occupancy vehicle, multiple-occupancy vehicle, transit, bike, and walking). The FMPO intends to repeat this study every five years to provide trend data and to gauge the effectiveness of efforts to promote transit and non-motorized transportation choices.

K. Safe Routes to School

The FMPO is working with an informal gathering of concerned groups, including the Safekids Coalition, Coconino County Health Department, Flagstaff Biking Organization, Flagstaff Unified School District, the police and fire departments, the Bicycle and Pedestrian Advisory Committees, City staff, and interested citizens, to promote projects and programs that enable and encourage children to walk and bicycle to school, as a way of promoting a healthy and active lifestyle from an early age, improving safety, and reducing traffic, fuel consumption, and air pollution in the vicinity of schools.

L. ecoPass

The ecoPASS is an annual bus pass provided by Mountain Line at no cost to City of Flagstaff employees who work within Flagstaff City limits. When city employees use the ecoPASS to commute, they reduce greenhouse gas emissions by riding on one of Mountain Lines's bio-diesel or hybrid electric buses; save money on gas; and reduce traffic and parking congestion.

M. City Bike Fleet

Sustainability and Environmental Management maintains a small fleet of bicycles for City employees to use for short work trips.

N. Sustainable Building Practices

The new Aquaplex facility is incorporating solar water heating systems to heat the pool and provide for all domestic hot water needs for the facility. A Hydronic Heating, Ventilation, and Air Conditioning system (HVAC) uses gas-fired boilers and individual fan coil units throughout to efficiently maintain building temperature. This HVAC system has the added benefits of easier operation and maintenance and a life expectancy of 25-50 years. The calculated payback for this system was 21 years using fuel costs from early 2006. Also incorporating into the maintenance of the Aquaplex pool is a defender pool filter which uses a regenerative media process to reduce the filter backwash frequency thereby saving millions of gallons of water a year. Additional water conservation measures include opening islands in parking lot to catch and infiltrate stormwater effectively. New City of Flagstaff fire stations are being built with Insulated Concrete Forms (ICF) which have a stand alone R-value of 50. With the addition of veneer and exterior walls, the R-value exceeds 60.

V. Quality of Life

A. Workforce Housing

The Affordable Housing program focuses on providing housing for the community's workforce. The Housing Program is attempting to empower low to moderate income families to become homeowners. Access to housing provides community residents with a suitable living environment and economic opportunity.

B. Community Reinvestment and Economic Development

The Community Reinvestment and Economic Development Program consists of both attraction and retention and expansion efforts. Additionally, the program funds the Northern Arizona Center for Emerging Technologies--a small-business assistance program founded to help entrepreneurs and startups succeed in northern Arizona. Attraction is directed toward high-paying target industries such as clean energy and the bio sciences. The Business Retention and Expansion Program (BR&E) builds relationships with existing businesses, helping them to thrive and to expand in the Flagstaff community.

C. Parks and Recreation

The Parks and Recreation Division brings the Flagstaff community together by providing opportunities for families and individuals to enjoy the outdoor environment and to participate in programs valuable to sustaining a healthy life style. The Division manages over 700 acres of parks, playgrounds and activity courts for the community.

D. Dark Skies Ordinance

The lighting provisions of the City of Flagstaff Land Development Code were adopted on April 8 1991. The purpose of the lighting regulations is to minimize light pollution, glare, and light trespass, and to promote the conservation of energy and resources while maintaining night time safety and security. The regulations also included a ban on the use of mercury vapor lamps after May 1, 1996. The City of Flagstaff became the worlds' first International Dark Skies City on October 24, 2001.